DOCUMENT RESUME

ED 306 404 CE 052 367

AUTHOR Partridge, Susan
TITLE A Discussion of Computer Use in Adult Literacy Instruction.
PUB DATE 89
NOTE 12p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adult Basic Education; *Adult Literacy; *Computer Assisted Instruction; *Computer Uses in Education; Courseware; Educational Technology; Illiteracy; *Literacy Education; Teacher Student Relationship

ABSTRACT

The many advantages claimed for using the computer in adult literacy instruction--privacy, immediate feedback, individualization, control, and flexibility--have also been observed in the practice of dedicated teachers, without the help of computers. Fortunately, many scholars still emphasize the need for teacher sensitivity and teacher-student interaction in computer instruction if such instruction is to be successful. Options to the reactive posture of instructional technology are the proactive approach or the interactive model, which is a combination of the reactive and proactive models. Concerns of educators regarding the use of computers include the shortage of high quality computer software and emotional bonding to the computer. Educators should also take note of research that shows that computer-assisted instruction enhances the achievement of students with learning styles favoring less socialization, whereas students with a people-oriented learning style achieve more in the traditional self-paced instruction group. (YLB)

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A Discussion of Computer Use in Adult Literacy Instruction

Susan Partridge

This paper is addressed to a discussion, based on research and on personal experience, of the pros and cons of using the computer for adult literacy instruction.

Turner, T.C. (6), Director, Technology for Literacy Center (TLC), St. Paul, Minnesota, states clearly, "Technology works with adult literacy students because it provides privacy, immediate feedback, individualization, control, and flexibility." In support of these provisions, she explains, "In recent research conducted at the Technology for Literacy Center (TLC) in St. Paul, Minnesota, learners were asked what they liked best about working on computers." She offers a sampling of the responses, a few of which follow:

> "I tell people I'm coming to my computer class. I'd be embarrassed to say I was going to learn to read, but it's great to tell friends I'm going to my computer class" (Patton, 1987).
>
> "I like working on a computer because you don't have to read out loud in class. If you make mistakes on the test, you can (go) on to the drill disk for help" (Learner Questionnaire [TLC]).

In regard to feedback, a couple of the adult students responded:

> "The instant feedback is great. You don't have to wait for teachers to check" (Patton, 1987).
>
> "This is much easier with a machine than with a tutor, doing the same thing over and over. (Computers) let you know when you do something wrong and they reward you when you do it right" (Pastori, 1986).

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Examples of answers offered regarding individualization are:

"You go at your own pace."

"I really like them. The computers make the problem simple, step by step. You can't help but learn" (Learner Questionnaire, TLC).

A sampling of students' comments about flexibility:

"There's no hassle from kids like there is in a school. Here it's just like you're going shopping and you go at your own convenience. It's open all the time" (Patton, 1987).

"I feel that they (the computers) are very good to me, because I am working full time, so I can come to the TLC anytime I want to and (it) just fits my time" (Learner Questionnaire, TLC).

The many provisions claimed for using the computer in adult literacy instruction -- privacy, immediate feedback, individualization, control and flexibility have been observed in the practice of dedicated teachers (without the help of computers) throughout several decades. Unfortunately, these provisions have been observed in the breach as well. Might the use of the computer "change this picture?"

We are living in a "hi-tech" age; therefore it is felt that careful consideration should be given the use of the computer in adult literacy instruction -- a use based on the uniqueness of the individuals concerned if it is to be successful. Computer instruction may not be the best type for all students.

An incident of individualization, caring, warmth and inspiration (without the computer) is remembered because it has had a life-long influence on the student concerned. Apparently, the teacher had a strong humanitarianism sense and knew her students well. She approached the young girl thus, "Would you like me to tell you something that I think would improve the overall appearance of all your papers?" To this the girl replied, "Oh, yes, I would!" The caring teacher advised neater crossings of the little girl's t's. She didn't use the word "sloppy" which would have been a perfect description of them the way the child had crossed them. The teacher's caring led to the girl's searching for other ways in which she might improve the appearance of her papers. To this day (many years later), she practices neatness and caring in her writing. The strong human element seems to have prevailed.

Fortunately, there are a number of scholars who emphasize the need for teacher sensitivity and teacher-student interaction in computer instruction if it is to be successful. Young and Irwin (7) offer what they consider to be the key to success in integrating computers into adult literacy programs. They say:

> The most effective use of computer programs is not as stand-alone lessons: teacher-student interaction is essential. Sensitive instructors are needed. Computers cannot teach people to read and write; the human element is essential.

They offer the following interesting example which emphasizes their expressed need for student-teacher interaction in

computer instruction; it is a letter from a man to his wife:

> Dear Mary,
> I am seting in front of the computer trying to compose a letter. I have not wrote to you since I left the service in 1946.
> Love Kenny

Kenny was satisfied with his message, so his attention was directed toward editing for spelling and grammatical errors. The result of student-teacher interaction is shown in this revision:

> Dear Mary,
> I am sitting in front of the computer trying to compose a letter. I haven't written to you since I left the service in 1946.
> Love, Kenny

Though the spelling checker provides the correct spelling for Kenny's "s-e-t-i-n-g", his tutor's interaction helped him to understanding why "sitting" was the best word to use in this instance. Obviously, all the corrections show that the help was given by a knowledgeable tutor, but, according to the International Reading Association, such help is not always available. The IRA (4) statement follows:

> Volunteer tutors make a contribution to the eradication of illiteracy and need to be actively recruited. However, they need to first participate in well-designed preparation programs. Unfortunately, in some of the existing volunteer literacy programs as little as 10 hours or less of training are provided for the tutors.

So great is IRA's concern about this that a Resolution for improving these conditions has been drafted. A copy of it is

found on page 1 of the above reference (4).

The involvement of such a large Association is encouraging especially for the concern for adequate training of tutors, for many researchers stress the importance of good teaching with or without the computer. In each case it is felt that there must be student-teacher interaction.

Thompson, J.G. and Jorgensen, S. (5) raise the question, "How interactive is instructional technology?" They begin the response to their question with a quote from Forman and Edwards, 1982, "Technology that facilitates the student's construction of underlying principles is certainly at a premium in education." They continue with their observations and suggestions:

> In contrast to this orientation toward developing learners' understanding, educational technology has focused more often on the achievement of correct solutions through prescriptive, closed-system models of instruction. Instructional technologies that function in this way, in fact, assume the learner is in a REACTIVE posture vis-a-vis instruction. From a Piagetian perspective, the result represents "rote knowledge," i.e., knowledge transmitted to the learner by an outside source (a teacher or by technological means), rather than knowledge directly experienced, acted upon, tested, or revised by the learner.

Alternative models for looking at interactions between learners and media are suggested by Thompson and Jorgensen. One is a PROACTIVE approach which they say would be comprised of activities that are interactive and emergent. They explain further, "This model demands that the learners construct and deduce principles from their own actions and experiences."

Another option offered is the INTERACTIVE model, a combination of the reactive and proactive models and which they say could be positioned along the continuum between reactive and proactive instructional models. They explain, "The interactive instructional environment is typified by teachers and media that allow or encourage active input and involvement from the learner. The interactive approach is perhaps found in its ideal form in the dynamic, personalized learning experience of a tutoring relationship."

Thompson and Jorgensen conclude:

> In summary, a reactive, proactive, and interactive schema of learning processes, viewed in relation to the learner's role, can offer alternative ways to think about and design technology-based instruction -- regardless of whether the learning is via computers, interactive videodisc, videotape or live television. Proactive or interactive approaches, in particular, suggest ways to be more responsive to and foster critical understanding on the part of the learners.

The shortage of what they consider quality computer software has been of concern to educators. Flouris, G. (2) has said, "What seems to be a paradox is that computer scientists or 'technicists' apply their expertise in designing the various educational activities without possessing the educational background or, more specifically, knowledge in curriculum and instructional design as well as in the psychology of learning. Consequently, the computerized programs that technicists often design and develop lack many of the features of modern, valid learning and educational theory."

Flouris has proposed an instructional design model and has stated several of its advantages:

(a) The model is based on a sound and valid learning and instructional theory.

(b) It allows for categorization of the intended learning task by analyzing the target objective of each lesson and by identifying the type of performance that is expected of the learner(s).

(c) It prescribes instruction based on learner characteristics, aptitudes, and entry behavior.

(d) It connects systematically the ends and means of the instructional process, thus making the instructional tasks more methodical and less erratic.

(e) It guides designers/teachers to systematically plan, develop, implement, and evaluate the attainment of intended learning outcomes by learners.

(f) It provides for a framework for an entire instructional system which aims at anticipating most learning conditions and for each learning task.

(g) It provides for the planning of all school learning varieties (five learning outcomes) that are usually taught in all school grades and in all curricular subjects; thus it is subject-matter free.

(h) It has the potential to increase the overall efficiency of the learning-instructional process.

Flouris doesn't claim that his proposal is a panacea, but he feels that it does "enable one to design, implement, and evaluate a whole range of curricular and learning varieties more effectively." He says, "In so doing, it provides for a framework within which explicit links among instructional sequences, learner characteristics, and processes involved in learning can

be identified further."

Emotional bonding, by some, to the computer has been another concern. Great philosophers have written about this strong attraction to machines as resulting in an indifference toward life instead of a great respect for it. They seem to feel that the computer could become a substitute for humans, especially as the processing of computer information becomes more and more like human thinking.

Gaylord, V.D. and Franklin, E.T. (3) attempted to explore the hypothesis that humans and machines may become interchangeable. The responses of the seventy-six participants in their study -- all computer programmers employed in the University of Wisconsin system, led them to conclude:

> For some adult programmers who understand that the computer is just a machine, there is enough of an attraction in computer interaction that they prefer it to human interaction. They've already given priority to the non-living over the living. How much more easily could this happen to a generation which from grade school has interacted with an "artificial" intelligence that seems almost human, as it addresses them by name, praises their performance, and even tells them jokes? For these people, machines and humans may be interchangeable in their lives to an even greater degree than previous generations.

Enochs, Handley, and Wollenberg (1) found that CAI instruction "enhances achievement more for students with learning styles favoring less socialization" and that "higher achievement in the traditional self-paced instruction group was associated with those subjects having more people orientation in learning

styles." Obviously, their findings offer educators, who have the best interests of their students at heart, some food for thought. This is true, too, of the responses given by students in a research project at the Technology for Literacy Center in St. Paul, Minnesota. (These responses were offered at the beginning of this report). What students prefer isn't always what's best for them; they need the expertise and guidance of the good teachers who are helping to prepare them for a happy and productive life.

Conclusion

It is concluded that both tutorial and computer instructional programs for adults could be improved by incorporating into them some of the findings of reputable researchers and by paying heed to positions taken by educational organizations of note.

It is further concluded that there should be better training of volunteer tutors and continuous "on-the-job" help for them.

Finally, it is concluded that there is a need for much more quality software.

Implications

The uniqueness of the students concerned should be the determining factor in deciding the best programs for them -- computer, tutorial or both.

Educators should get involved in the designing of quality software that takes into account the uniqueness of the individuals for whom it is intended. Ethnic backgrounds, learning styles, life styles, interests, attitudes, self-concepts, health and mental ability are among the many things to be considered if the needs of ALL students are to be met.

Administrators must get involved in setting up training programs for volunteer tutors, in arranging appropriate time schedules for students, many of whom work full time, and in communicating, on a regular basis, with the tutors concerned.

Student-teacher interaction is very important in both tutorial and computer programs.

All those involved in adult literacy programs should keep abreast of reputable research dealing with it.

Dynamic, knowledgeable and sensitive instructors are the key to success in all adult literacy programs, be they computer, tutorial or both.

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